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ABSTRACT

In recent years educators have been utilizing judgmental methods, such as the ones advocated by Ebel and Angoff, to set minimum competency standards on test items. This study was designed to investigate the reliability and validity of these two procedures in setting minimum levels of performance on 175 vocational evaluator competency statements. Each of 24 vocational evaluation rehabilitation educators and 19 vocational evaluation field personnel rated each of the 175 statements, utilizing first the Ebel (1972) procedure followed by the Angoff (1971) rating procedure. The reliability and validity findings demonstrate that the Ebel and Angoff methods may be utilized in a valid and reliable manner to establish minimum levels of performance at the competency level. The Ebel method was most reliable. These results may give new insights to decision makers who prefer to answer the question of how many competencies a candidate must master over the more traditional question of how many test items a candidate must answer correctly. (BW)

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Vocational Evaluator Competencies and Minimum Competency Standards for Vocational Evaluation: A Validity Study

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Vocational Evaluator Competencies and Minimum Competency Standards for Vocational Evaluation: A Validity Study

In a continuing effort to better define the rehabilitation profession and delineate the tasks of various rehabilitation subspecialties, a host of researches have studied the competencies of various rehabilitation practitioners. Competencies of the rehabilitation counselor have received the greatest attention (Muthard & Salomone, 1969; Wright & Fraizer, 1975; Rubin, 1978). Vocational evaluator competencies were studied by Coffey (1978). Sink and Porter (1978) led a comparison of counselor and evaluator competencies. The adjustment specialist competencies were examined by Coffey and Ellien (1979), and Matkin (1983) contributed the competencies of the rehabilitation specialist in the private sector.

Some attention has been given to the relative importance of the various competencies identified (Coffey, 1978; Sink & Porter, 1979), but little effort has been expended in verifying the degree of agreement among professionals relating to the number of competencies or how many of the defined competencies are required to demonstrate minimal level competency for the profession.

In recent years educators have been utilizing judgmental methods of standard setting, such as the ones advocated by Ebel (1972) and Angoff (1971), to set minimum competency standards on test items. This study was designed to investigate the reliability and validity of these two procedures in setting minimum levels of performance at the competency level.

Coffey (1978), through a series of survey techniques, synthesized a list of 175 vocational evaluator competency statements from a list of over 2500 competencies. Coffey then had 96 vocational evaluators and 20 vocational evaluation educators rate the 175 competencies in terms of importance on a 5-step Likert-type scale.

Method

The participants of this study consisted of two groups of raters including 24 vocational evaluation rehabilitation educators in one group and 19 vocational evaluation field personnel in another group.

Each rater in each group rated each of the 175 competency statements as identified by Coffey (1978), utilizing first the Ebel (1972) procedure followed by the Angoff (1971) rating procedure. The Ebel and Angoff procedures were employed due to the nature of the ratings to be made by the raters. Other judgmental procedures, i.e., Nedelsky (1954), require multiple choice items so that decisions are made relative to distractors. Rating decisions made via the Ebel and Angoff procedures are on the basis of total item content, thus rendering them applicable to competency statements. The raters worked independently as the competency statements, rating forms, instructions, and personal data sheets were distributed via mail. The raters were instructed to rate each competency statement utilizing both prescribed procedures before going on to the next competency statement.

The first rating method employed by the raters was Ebel's (1972) procedure. On the rating form provided, nine categories were listed, and the raters were instructed to check one of the nine categories indicating whether the competency statement being rated was considered

essential, important-easy, important-medium, acceptable-easy, acceptable-medium, acceptable-hard, questionable-easy, questionable-medium, or questionable-hard. These categories made it necessary for the raters to decide upon the relevance of the competency as well as the difficulty level of the competency statement. The reference point for the judgment was the beginning vocational evaluator minimally competent in the profession.

The second method, Angoff (1971), required raters to estimate the percentage of beginning vocational evaluators, minimally competent in the profession, that they thought would possess or be able to demonstrate the listed competency statement.

After all competency statements were rated by the two procedures, the raters opened a separate envelope with instructions to provide a percentage level representing an expected success rate for each of the nine Ebel categories. In essence the raters were asked to determine what percentage of the competency statements allocated to each of the nine categories should be required to determine minimal competency.

Analyses and Results

Interrater reliability coefficients were calculated via repeated measures analysis of variance procedure described by Ebel (1951). As summarized in Table 1, the reliabilities were .97 and .93 for the Ebel and Angoff methods, respectively.

Insert Table 1 about here

The relationship between Coffey's (1978) original findings relative to the average relevancy ratings of the competency statements and the average ratings of the competency statements found in this study was studied through the use of Spearman-[redacted] rank-order correlation coefficients (Glass & Stanley, 1970). As depicted in Table 2, the average importance ratings from the Coffey study correlated .88 and .70 with the average competency ratings with the Ebel and Angoff methods, respectively. Other coefficients ranged from .63 to .87. The magnitude

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Insert Table 2 about here

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of the relationships between the present study findings and Coffey's findings was consistently greater with the Ebel method under all conditions.

Additional validity information was obtained by computing the correlation coefficients between the different groups and methods for the competency list. Pearson product-moment correlation coefficients were calculated to examine these relationships (Glass & Stanley, 1970).

Insert Table 3 about here

As shown in Table 3, the correlation between the Ebel and Angoff methods was .83.

Discussion

Consistent with the findings of others (Colton & Hecht, 1981, Note 1; Halpin & Halpin, 1981, Note 2; Halpin, Sigmon, & Halpin, 1983:

Poggio, Glasnapp, & Eros, 1981, Note 3; Skakun & Kling, 1980). The Ebel method was found to be the most reliable. These authors have reported that the Ebel method is the most reliable within groups as well as the most stable across groups of raters.

When the relationship between these findings and Coffey's (1978) was explored, substantial validity coefficients were found. These findings point not only to the validity of the present findings, but also add meaning to Coffey's original study. Both studies utilized the same list of competency statements defining the role of the vocational evaluator, but each study required raters to make decisions regarding the importance and relavancy of the statements in entirely different manners. These substantial relationships between the findings of the two studies provide validity coefficients for each set of findings.

The intercorrelations between the methods represent significant relationships, thus adding credibility to the validity of both methods.

In summary, the reliability and validity findings of this study demonstrated that the Ebel (1972) and Angoff (1971) methods of standard setting may be utilized in a valid and reliable manner to establish minimum competency levels of performance at the competency level as opposed to the traditional application at the test item level. These relationships point not only to the validity of the original Coffey (1978) findings but also to the validity of these reputable item judgment methods for new uses at the competency level. These results may give new insights to decision makers who prefer to answer the

question of how many competencies a candidate must master over the more traditional question of how many items must a candidate answer correctly.

Reference Notes

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Table 1

Interrater Reliability for Each Group by Each Method

	Ebel	Angoff
Field Personnel	.92	.84
Educators	.95	.89
Combined Groups	.97	.93

Table 2

Sigmon-Coffey Data Relationships

Sigmon Group/Method[1]	Coffey Group[2]	Rho*
Combined/Angoff	Combined	.70
Combined/Ebel	Combined	.88
Field Personnel/Angoff	Practitioners	.63
Educators/Angoff	Educators	.63
Field Personnel/Ebel	Practitioners	.81
Educators/Ebel	Educators	.87
Field Personnel/Angoff	Educators	.63
Educators/Angoff	Practitioners	.67
Field Personnel/Ebel	Educators	.79
Educators/Ebel	Practitioners	.85

*All correlations were significant at $p < .001$

[1]Sigmon grouping = combined (19 Field Personnel and 24 Educators)

[2]Coffey grouping = combined (96 Practitioners and 20 Educators)

Table 3

Correlation Coefficients for Group and Method

	Ed Angoff	Tot Angoff	FP Ebel	Ed Ebel	Tot Ebel
FP Angoff	.84***	.95***	.84***	.73***	.79***
Ed Angoff		.97***	.79***	.77***	.79***
Tot Angoff			.84***	.78***	.83***
FP Ebel				.92***	.97***
Ed Ebel					.99***

*$p < .05$

**$p < .01$

***$p < .001$